

Clean Fuels Outlets Workshop E85

May 26, 2010

California Environmental Protection Agency



Air Resources Board

E85 Background

- ➡ Nominal blend of 85 percent denatured ethanol and 15 percent gasoline that is an alternative fuel for flexible fuel vehicles (FFVs)
- ➡ Actual ethanol content of E85 can vary depending upon the month of the year and geographical location, and may be as little as 70 percent ethanol

E85 Background

- ➡ Almost 30 million light duty vehicles in California, over 300,000 of which are flexible fuel vehicles
- ➡ 9,700 total retail gasoline dispensing facilities in California (as of Nov. 2008), 35 of which sell E85

E85 Background cont.

- ➡ RFS2 created by Energy Independence and Security Act of 2007
 - Increasing volumes of renewable fuel required, up to 36 billion gallons by 2022
- ➡ Exceeds ethanol allowed in conventional gasoline
- ➡ Increasing amounts of E85 and/or mid-level ethanol blend gasoline will be required

Alternative Fuels Incentive Program (AFIP - AB 1811)

- ➡ \$25 million total program
- ➡ \$5.367 million awarded for Fuel Infrastructure Projects and Price Parity Incentives
 - 6 projects, \$5,067,000 for E85
 - 4 projects, \$300,000 for other fuels (CNG, electric vehicle, biodiesel)
- ➡ \$400,000 awarded for Biofuel (E85) Refueling Equipment Research and Development
- ➡ Funds had to be spent by June 30, 2009

E85 Outlets Prior to Alternative Fuels Incentive Program (June 30, 2007)

1 retail station:

- Regional Transportation Center (Pearson Fuels) in San Diego

3 private fleet stations:

- Lawrence Berkeley National Laboratory
- Lawrence Livermore National Laboratory
- Vandenberg Air Force Base

E85 Outlets Under Alternative Fuels Incentive Program (June 30, 2009)

☞ 34 retail stations

- 22 in Sacramento metropolitan area, 12 elsewhere
- Principal developers included:
 - Pearson Fuels
 - DMC Green, Inc.
 - Propel, Inc.
 - Tooley Oil Co.
 - Nella Oil Co.

☞ 6 private fleet stations

- Principal developers included InterState Oil Co.

☞ AFIP grantees are required to:

- Continue marketing alternative fuel for a minimum of 2 years
- Submit quarterly reports to ARB on price and quantity

E85 Outlets Today (May, 2010)

- ➡ 35 retail stations
- ➡ ~43 private fleet stations
 - 3 existing stations
 - 6 stations funded by AFIP
 - ~34 additional stations
 - Some under construction
 - Mostly state and federal government facilities

Vapor Recovery Equipment

- ➡ Phase I: VOC emission control between the fuel delivery tank truck/trailer and the storage tank
- ➡ Phase II: VOC emission control between the storage tank and the vehicle

E85 Phase I Vapor Recovery

- ➡ VOC emission control between the fuel delivery tank truck/trailer and the storage tank
- ➡ Franklin Fuel Systems, Inc. (Phil-Tite) Executive Order VR-101-K for underground tanks certified for use with E85
- ➡ No Phase I systems certified for use with E85 on above ground tanks currently available
 - Each site requires R+D test site status from ARB

E85 Phase II Vapor Recovery

- ➡ VOC emission control between the storage tank and the vehicle
- ➡ US EPA and ARB encouraged local air districts not to require Phase II for E85 because most flexible fuel vehicles have Onboard Refueling Vapor Recovery (ORVR) systems
- ➡ Districts with rules exempting E85 or fleets with ORVR include:
 - Sac Metro AQMD Rule 449
 - South Coast AQMD Rule 461
 - San Joaquin Valley APCD Rule 4622
 - Bay Area AQMD Rule 8-7
 - San Diego County APCD Rules 61.4 and 61.4.1

E85 Phase II Vapor Recovery cont.

- ➡ Required at only 1 retail site in Farmington (San Joaquin County)
- ➡ Some non-AB 1811 private fleet sites also use Phase II vapor recovery
- ➡ No Phase II systems certified for use with E85 currently available
 - Most major districts have a rule exempting E85 or fleets with ORVR from Phase II
 - But if Phase II is required, each site requires R+D test site status from ARB

Other Equipment

- ➡ Dispensers
- ➡ Blender Pumps
- ➡ Storage Tanks

E85 Dispensers/Blender Pumps

- ➡ No UL listed dispensers for use with fuel containing greater than 15% alcohol
 - UL had extended a limited number of certifications to component subassemblies for use within dispensers for use with fuel containing greater than 15% alcohol, these were suspended Oct. 2006
 - No hanging hardware (hoses, swivels, nozzles, breakaways) certified for use with fuel containing greater than 15% alcohol
- ➡ See authority having jurisdiction (typically local fire marshal) re approval to use non-UL listed dispensers
- ➡ E85 and mid-level ethanol blender pumps are now available

E85 Storage Tanks

- ➡ Storage tanks compatible with high-level ethanol blend fuel including E85 are available
- ➡ Retail sites
 - All but 1 site in Farmington (San Joaquin County) use an underground storage tank
- ➡ Private fleet sites
 - All use an above ground storage tank

Some Permitting Requirements

- ☞ Fuel suppliers must comply with E85 specifications in:
 - 13 CCR 2292.4
 - ASTM D 5798-09b
 - E85 test program exemptions issued by ARB on a case-by-case basis waive minimum vapor pressure and ethanol content specifications

Some Permitting Requirements cont.

☞ E85 Marketers

- Gasoline dispensing facility Authority to Construct/Permit to Operate from local air district
- Approval from authority having jurisdiction (typically local fire marshal) to use non-UL listed dispensers
- Research and development test site status from ARB if using vapor recovery equipment not certified for use with E85
 - Phase I systems for E85 above ground tanks
 - Phase II systems where districts have not exempted
- Hazardous Materials Management Plan, Spill Prevention Control and Countermeasure Plan, etc. contact Certified Unified Program Agency (CUPA)

ARB Updating E85 Specifications

13 CCR 2292.4

- ➡ Specifications likely to change include:
 - Vapor pressure
 - Ethanol content
 - Sulfur content
- ➡ Seeking industry and public input
- ➡ Considering proposed changes to ASTM D 5798
- ➡ Working with California Division of Measurement Standards

Contacts

- ➡ ARB AFIP and E85 specifications update
 - A. James Peterson apeterso@arb.ca.gov
- ➡ ARB List serve for E85 specifications
 - <http://www.arb.ca.gov/fuels/altfuels/e85/e85.htm>
- ➡ ARB R+D test site status approval
 - Mark Watkins mwatkins@arb.ca.gov
- ➡ CEC contact for AB 118 funding
 - Peter Ward pward@energy.state.ca.us